

Frontier Hard Chrome Photo Gallery

September 2003:



Photo showing the site after all fluff soil has been removed and final grading has been completed.



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August 2003:

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Auger treating hot spot to 25' depth.



Fluff Loadout: Excess fluff soil is being loaded into truck for offsite disposal. This soil was sampled and analyzed prior to loadout to determine its disposal method



Groundwater Sampling: Photo showing ESAT collecting confirmation samples of treated groundwater. Fluff soil (foreground) had to be moved out of the way to allow access.



Piles of fluff soil awaiting results from the laboratory. Lab results will determine disposal method.



The ISRM wall was completed when the western most injection was completed in the street. This last injection was completed on a weekend to minimize interference with traffic.

July 2003:

July 2003:



Photo showing piles of debris excavated from the subsurface. Debris is segregated into piles and sampled to determine appropriate disposal methods.



Two buried tanks apparently used to store chromium solutions were found buried under the northern half of the FHC building. Note the color of the contents inside the tank.



Soil in the area where the buried chromium tanks were discovered appears stained with contamination. These areas are within the source area treatment zone



Debris: Metal and concrete debris removed from the subsurface to allow treatment with the auger



Screen Plant: Vibratory screen being used to separate soil from debris to reduce debris offsite disposal costs.

June 2003:



debris discovered during site remediation (hanging up the auger).



hot spot treatment (testing phase)



Test Column.JPG

Construction Fill Debris.JPG



Removal of concrete debris in preparation for remediation.



Debris being loaded into trucks for off-site disposal. Much of the concrete was so badly soaked with chrome that it necessitated hazardous waste designation.



Note chrome-stained yellow soil in foreground.

Demolition preparation for cleanup was completed at the site on May 15, 2003.

May 2003



Pilings were used to support building foundations, and had to be removed before source area treatment could begin.



Concrete slabs removed.



Pilings removed.

April 2003

April 2003



Installation of 6 inch injection wells north of Cassidy Building. Injection wells were installed using a sonic drill rig due to presence of cobbles at depth. Injection wells being installed to depths of 40 feet.



Another view of 6 inch injection well installation. Note the closeness of the well to the adjacent building. Settlement of the building foundation was closely monitored and sonic energy input controlled as necessary to avoid consolidation of the hydraulic fill and damage to the building.



Abandonment of existing 4 inch wells by Holt Drilling. The casing of the well is being removed from the ground.

Richardson and Frontier Building Demolition in January 2003.



Demolition of metal portion of Richardson Building using metal shears. Scrap metal was recycled.



Demolition of cinderblock Frontier Hardchrome Building. Water was used to control dusting.



Demolition of the flue used during the plating process. This flue was one of the most contaminated areas of the site. The flue contained chromium in excess of 20,000 mg/kg.



Additional photo of flue demolition.



Dismantling of the Richardson Building. Sampling showed the Richardson Structure was not contaminated. The metal structure portion of the Richardson Building was dismantled and is being re-used.



Concrete slabs are being temporarily left in place as ground cover until the underlying soil can be treated (scheduled for Summer 2003). The slabs were covered in plastic to prevent contact with rainfall.



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Photo showing a piling cap (square piece of concrete with round depression). Underground piling supporting the building foundation were found and will have to be pulled prior to soil treatment.



Photograph showing the Frontier Hardchrome Building site after building demolition and site cleanup.



Street side photograph showing site appearance after Frontier Hardchrome structure demolition was completed.



Process control and monitoring equipment used to conduct the ISRM pilot test at FHC.



Sample collection and field parameter monitoring equipment housed in the mobile laboratory. Sample streams from site monitoring wells are routed into this central location for real-time measurement of field parameters (DO, pH, ORP, EC, Temp.) and dithionite concentration.



ISRM pilot test site showing injection and monitoring wells, the process control and monitoring trailer, and the chemical tanker truck.



ISRM pilot test site showing injection and monitoring wells and the process control and monitoring trailer.



ISRM pilot test site showing injection and monitoring wells, the process control and monitoring trailer, and the chemical tanker truck.



ISRM pilot test site showing injection and monitoring wells, the process control and monitoring trailer, and the mobile laboratory trailer where aqueous samples are collected and analyzed.